



OPERATOR MANUAL
Multi-Use Minimonocular
Model: MUM-14



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SAFETY SUMMARY

WARNING and CAUTION statements have been strategically placed throughout the text prior to operating or maintenance procedures, practices or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION). NOTES emphasize necessary and important data. CAUTIONS and NOTES appear in the text as applicable. Definitions for WARNINGS, CAUTIONS and NOTES are as follows:

Warning

Highlights an operation or maintenance procedure, practice, condition, statement, etc., which if not strictly observed, could result in injury to or death of personnel.

Caution

Highlights operating or maintenance procedure, practice, condition, statement, etc., which if not strictly observed could result in damage to, or destruction of equipment or loss of mission effectiveness.

Note

Highlights an essential operating or maintenance procedure, condition or statement.

SAFETY SUMMARY

WARNING

- **THE MUM-14 IS A PRECISION OPTICAL INSTRUMENT AND MUST BE HANDLED CAREFULLY AT ALL TIMES TO PREVENT DAMAGE.**
- **DO NOT SCRATCH THE EXTERNAL LENS SURFACES OR TOUCH THEM WITH YOUR FINGERS.**
- **WIPING DEMISTING SHIELD WITH LENS PAPER WHILE WET OR WITH WET LENS PAPER CAN DAMAGE THE COATING.**
- **TO PROTECT THE IMAGE INTENSIFIER, KEEP THE LENS CAP ON THE OBJECTIVE LENS WHEN THE MONOCULAR IS NOT IN USE OR WHEN CHECKED OUT IN DAY-LIGHT CONDITIONS.**
- **BE CAREFUL NOT TO TOUCH THE GLASS SURFACES. IF YOU GET FINGERPRINTS OR CONTAMINATES ON THE GLASS SURFACES, USE LENS PAPER TO CLEAN THE SACRIFICIAL WINDOW. IF MOISTURE IS NEEDED, USE YOUR BREATH TO MIST THE SURFACE OF THE GLASS PRIOR TO WIPING.**

SAFETY SUMMARY

WARNING

- **THE IR ILLUMINATOR IS A LIGHT THAT IS INVISIBLE TO THE UNAIDED EYE FOR USE DURING CONDITIONS OF EXTREME DARKNESS. HOWEVER, THE LIGHT FROM THE ILLUMINATOR CAN BE DETECTED BY THE ENEMY WHEN USING NIGHT VISION DEVICES.**
- **IT IS RECOMMENDED THAT THE EYECUP BE REPLACED WITH THE EYE-GUARD DURING WEAPON MOUNTED USE.**

NOTES

- **THE MUM-14 IS NOT A WEAPON SIGHT, HOWEVER, IT CAN BE USED IN CONJUNCTION WITH A COLLIMATED DOT SIGHT OR LASER AIMING DEVICE.**
- **WHEN UTILIZING THE MUM-14 FOR DIVING PURPOSES, THE GOGGLES MAY NOT BE USED IN THE HAND-HELD MODE. THE GOGGLES MUST BE WORN ON THE HEAD OR IN THE HELMET MOUNTED POSITION.**

SAFETY SUMMARY

NOTES

- **AT OPERATING TEMPERATURES BELOW -20°C (-4°F), ALKALINE BATTERIES ARE NOT RECOMMENDED, AS OPERATING LIFE WILL BE SEVERELY REDUCED. LITHIUM-IRON DISULFIDE 1.5V AA BATTERIES, 123A 3.0VDC LITHIUM, OR EQUIVALENT SHOULD BE USED BELOW -20°C (-4°F).**
- **THE PURPOSE OF THE ILLUMINATOR IS FOR VIEWING AT CLOSE DISTANCES UP TO 3 METERS WHEN ADDITIONAL ILLUMINATION IS REQUIRED.**
- **TO MOVE THE POWER SWITCH FROM THE OFF POSITION, YOU MUST PUSH IN THE SWITCH, AND THEN TURN IT.**
- **MAKE SURE THE SHADING IS NOT THE RESULT OF IMPROPER EYE-RELIEF ADJUSTMENT.**

EQUIPMENT LIMITATIONS

To Avoid physical and equipment damage when using the MUM-14, carefully read and understand the following safety precautions.

- The equipment requires some night light (moonlight, starlight, etc.) to operate. The level of performance depends upon the level of light.
- Night light is reduced by passing cloud cover, while operating under trees, in building shadows, etc.
- The equipment is less effective viewing into shadows and other darkened areas.
- The equipment is less effective through rain, fog, sleet, snow or smoke.
- The equipment will not “see” through dense smoke.
- Adjust vehicular speed to prevent over driving the range of view when conditions of possible reduction or loss of vision exist.
- Exposure to high levels of external light sources for extended periods of time can significantly reduce the service life of the image intensifier tube and permanently degrade the equipment.

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CHAPTER 1: GENERAL INFORMATION

Purpose of Equipment:

To provide the soldier with the ability to observe at night under moonlight and starlight conditions. The MUM-14 can be handheld, head mounted, helmet mounted or weapon mounted to enable walking, driving, weapon firing, short-range surveillance, map reading, vehicle maintenance, and administering first aid. The unit allows for horizontal and vertical adjustments when head or helmet mounted and is also equipped with an infrared light-emitting source.

Equipment Improvement Recommendations:

Reports from the user on recommendations for improvements are encouraged. Send reports to the address below:

Nivisys Industries, L.L.C.
400 S. Clark Drive, Suite 105
Tempe, Arizona 85281
USA

CHAPTER 2: EQUIPMENT DESCRIPTION

System Description:

The MUM-14 is a hand-held, head-mounted, helmet-mounted, or weapon-mounted night vision system that enables walking, driving, weapon firing, short-range surveillance, map reading, vehicle maintenance, and administering first aid in both moonlight and starlight. Each unit allows for vertical adjustment (by using head straps), fore-and-aft adjustment, objective lens focus, and eyepiece focus. The device is also equipped with an infrared light-emitting source.

Weight and Dimensions:

- Weight (no battery) 260 grams
- Length 4.1 inches
- Width 1.7 inches
- Height 2.5 inches

Continuous Operation:

- 1 DL123A battery >40 hours
- 1 AA battery >20 hours

Characteristics:

- Magnification 1X
- f-Number f/1.2
- Focus Range 25cm (9.8 in.) to infinity
- Eyepiece Diopter Adj. -6 to +4 diopters
- Eye Relief 27mm
- Voltage 3.0 VDC
- Power Requirements 1 x DLA123A or
1 x 1 AA Alkaline
- IR Illumination Range ~20 meters
- Field of View 40° +/- 2° with
18 mm I² tube format

Description of Major Components:

Multi-Use Mini Monocular

(The monocular night vision device with unity magnification.)

Lens Cap

(A cap used to protect the lens and for testing the unit in daylight.)

Eyecup

(A rubber cup used to protect eyepiece and for operator comfort, as well as for nighttime backlight security.)

Soft Carrying Case

(A protective nylon bag used for storing of MUM-14 and accessories.)

Operation Manual

(Provides equipment description, use of operator controls and preventative maintenance.)

Brow Pads

(Varying thickness brow pads are provided to allow the head mount assembly to adapt to differing head sizes.)

Shipping/Storage Case

(A hard plastic case designed to protect the MUM-14 components during shipping/storage.)

Weapon Mount

(Small arms adapter that allows the MUM-14 to be mounted on a MIL-SPEC 1913 rail)

Neck Cord

(The neck cord is worn around the neck and tethers the lens cap to the MUM-14.)

Description of Major Components:

Demist Shield

(Used to prevent the eyepiece lenses from becoming fogged.)

Sacrificial Window

(A replaceable window supplied to protect the objective lens during operation in adverse conditions.)

Head Mount Assembly

(Adjustable universal assembly that secures the MUM-14 to the operator's head providing hands-free operation.)

Headmount Adapter

(This item attaches the MUM-14 to the headmount or helmet mount.)

Lens Tissue Paper

(Lint free paper designed to clean the lenses during maintenance.)

Battery (AA alkaline)

(A single, AA battery used to power the unit.)

Battery (DL123 lithium)

(A single, DL123 battery used to power the unit.)

Battery Adapter

(Allows the MUM-14 to accept a single AA alkaline battery used to power the unit, instead of the lithium battery.)

Shoulder Strap

(Allows the carrying bag to be slung across the shoulder for ease of carrying.)

Description of Optional Components:

Camera Adapter

(This adapter attaches to the eyepiece for collection of imagery from the MUM-14.)

Dive Window

(This window attaches to the MUM-14 prior to submerging to protect it during dive activities.)

Flip-Up Helmet Mount

(Provides mount interface for the MUM-14 to a range of ballistic helmets.)

Dual Carriage Mount

(Adapter that allows two MUM-14's to be attached in a binocular configuration.)

3X or 5X Afocal Lenses

(Attaches to the MUM-14 for enhanced range performance.)

Lens 3X (Special Custom Order)

(Attaches to the MUM-14 for enhanced range performance.)

Infrared Flood/Spot

(Focusing lens for the extended source IR LED to narrow or widen the illumination beam.)

Compass

(Provides magnetic azimuth orientation into the operator's field of view when using the MUM-14.)

Shuttered Eyecup

(Used to maintain display backlit security.)

CHAPTER 3: MOUNTING PROCEDURES

WARNING

IT IS RECOMMENDED THAT THE EYECUP BE REPLACED WITH THE EYEGUARD DURING WEAPON-MOUNTED USE.

NOTE

THE MUM-14 IS NOT A WEAPON SIGHT, HOWEVER, IT CAN BE USED IN CONJUNCTION WITH A COLLIMATED DOT SIGHT OR LASER AIMING DEVICE.

Attaching the Weapon Mount to the Weapon:

Loosen the clamping knob on the weapon mount. Position the monocular mount on the weapon's mounting rail. Adjust the fore/aft position of the monocular as necessary by loosening the clamping knob and repositioning the weapon mount on the rail. Tighten by turning the clamping knob.



Figure 3-1. Attaching Weapon Mount to Weapon

Attaching the MUM-14 to the Weapon Mount:

Align the monocular and the weapon mount. Slide the monocular rearwards until the alignment boss aligns with the alignment groove on the weapon mount. Push until the monocular locks into the weapon mount.



Figure 3-2. Attaching MUM-14 to Weapon Mount

Mounting the MUM-14 to a Head/Helmet Mount Adapter:

1. Hold the head/helmet mount adapter by the large knurled knob with the (small) rotational knob facing forward.
2. Rotate the knurled knob and slide the mount onto the center of the monocular rail.
3. Ensure that the mount is fully locked into the recoil stop on the monocular.

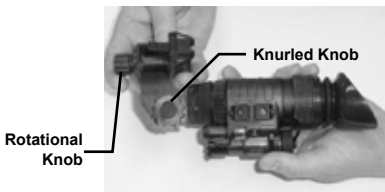


Figure 3-3. Attaching the MUM-14 to the Head/Helmet Mount Adapter

Attaching the Head/Helmet Mount adapter to the Head Mount:

Align the head mount and the head/helmet mount adapter. Move the monocular reward until the alignment boss meets the alignment groove on the head mount. Push until the monocular locks into the head mount.

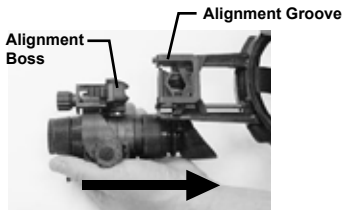


Figure 3-4. Attaching MUM-14 to Head Mount

CHAPTER 4: OPERATING PROCEDURES

CAUTION

TO PROTECT THE IMAGE INTENSIFIER, KEEP THE LENS CAP ON THE OBJECTIVE LENS WHEN THE MONOCULAR IS NOT IN USE OR WHEN CHECKED OUT IN DAYLIGHT CONDITIONS.

NOTE

AT OPERATING TEMPERATURES BELOW -20°C (-4°F), ALKALINE BATTERIES ARE NOT RECOMMENDED, AS OPERATING LIFE WILL BE SEVERELY REDUCED. LITHIUM-IRON DISULFIDE 1.5V AA BATTERIES OR EQUIVALENT SHOULD BE USED BELOW -20°C (-4°F).

Battery Life:

The MUM-14 operates with one DL 123 battery or one AA battery when using the AA battery adapter.

Estimated Battery Life	
Battery Type	Usage
DL123A	>40 Hours
Standard AA	>20 Hours

Table 4-1. Battery Life

DL-123A Lithium Battery Installation:

1. Unscrew the battery cap (A) and insert the battery (B), observing the polarity as indicated.
2. Replace the battery cap (A) and screw cap hand tight.

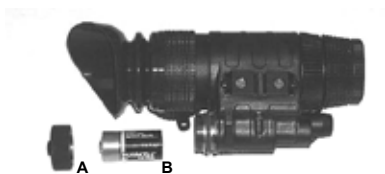


Figure 4-1. DL123 Battery Installation

AA Alkaline Battery Installation:

1. Unscrew the battery cap (A) and screw in the AA battery adapter (C).
2. Insert AA battery (B) and, observing the polarity as indicated.
3. Replace the battery cap and screw cap hand tight.



Figure 4-2. AA Alkaline Battery Installation

Mechanical Functions:

The mechanical functions of the MUM-14 allow for differences in the physical features of individual operators and provide for operating the system. These functions include the On/Off/IR control, eye relief (see Section III Mounting Procedures – Headmount Adjustments), diopter adjustment, and objective lens focus.

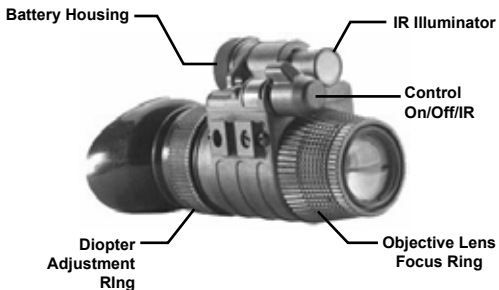


Figure 4-3. Mechanical Functions

ON/OFF/IR Power Switch:

The Power Switch has the following three positions:

ON – Push and rotate counter-clockwise turn on the monocular.

OFF – System off.

IR – Push and rotate clockwise to activate the IR illuminator.

Low Battery Indicator:

A yellow indicator light is visible through the eyepiece – localized outside of the field of view. When it is illuminated, it indicates a low battery condition.

Objective Lens Focus:

Objective lens can be adjusted so that the image is clearer. Rotate the objective lens counter-clockwise to adjust it to infinity. Rotate clockwise to adjust the focus on nearby objects.

Diopter Adjustment:

The diopter adjuster ring is used to focus the eyepiece for use without the need of corrective lenses.

Infrared (IR) Illuminator Operation:

Push and rotate the On/Off/On-IR Switch to the IR position, observe that the red light turns on in the eyepiece to indicate that the IR illuminator is operating.

CAUTION

THE IR ILLUMINATOR IS A LIGHT THAT IS INVISIBLE TO THE UNAIDED EYE FOR USE DURING CONDITIONS OF EXTREME DARKNESS. HOWEVER, THE LIGHT FROM THE ILLUMINATOR CAN BE DETECTED BY THE ENEMY WHEN USING NIGHT VISION DEVICES.

NOTE

THE PURPOSE OF THE ILLUMINATOR IS FOR VIEWING AT CLOSE DISTANCE UP TO 3 METERS WHEN ADDITIONAL ILLUMINATION IS NEEDED.

Installation of the Sacrificial Window:

CAUTION

BE CAREFUL NOT TO TOUCH THE GLASS SURFACES. IF THE GLASS SURFACES ARE CONTAMINATED OR HAVE FINGERPRINTS, USE LENS PAPER TO CLEAN THE SACRIFICIAL WINDOW. IF IT IS NECESSARY TO WET THE WINDOW, BREATH ON THE SURFACE OF THE GLASS TO WET IT BEFORE CLEANING.

Carry out the following procedure to install the sacrificial window on the objective lens.

1. Remove the monocular objective lens cap.
2. Hold the lens by the side with teeth and screw it clockwise into the objective lens. Do not overtighten.
3. Replace the monocular objective lens cap.

Installation of the Demist Shield:

CAUTION

WIPING DEMISTING SHIELD WITH LENS PAPER WHILE WET OR WITH WET LENS PAPER CAN DAMAGE THE COATING. ONLY CLEAN WHEN THE DEMIST SHIELD IS DRY AND ONLY USE DRY LENS PAPER.

Carry out the following procedure to install the demist shield on the objective lense.

1. Carefully remove the eyecup.
2. With the threaded end first, place the demist shield on the eyepiece, screw it in by turning clockwise. Do not overtighten.
3. Replace the eyecup.

CHAPTER 5: OPERATIONAL DEFECTS

Operational defects relate to the reliability of the image intensifier and are an indication of instability. If identified, they are an immediate cause for rejecting the MUM-14. They include shading, edge glow, flashing, flickering, and intermittent operation.

Shading:

If shading is persistent, you will not see a fully circular image (Figure 5-1). Shading is very dark and you cannot see an image through it. Shading always begins on the edge and migrates inward eventually across the entire image area. Shading is a high contrast area with a distinct line of demarcation. Return the MUM-14 to the maintainer.

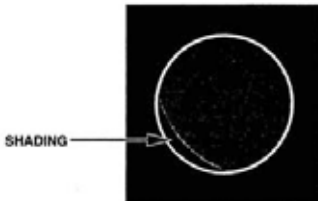


Figure 5-1. Shading

NOTE

MAKE SURE THE SHADING IS NOT THE RESULT OF IMPROPER EYE-RELIEF ADJUSTMENT.

Edge Glow:

Edge glow is a bright area (sometimes sparkling) in the outer portion of the viewing area (see Figure 5-2). To check for edge glow, block out all light by cupping a hand over the lens. If the image tube is displaying edge glow the bright area will still show up. Return the MUM-14 to the maintainer.



Figure 5-2. Edge Glow

Flashing, Flickering, or Intermittent Operation:

The image may appear to flicker or flash. If there is more than one flicker, check for loose battery adapter or weak battery. Return the MUM-14 to the maintainer.

Cosmetic Blemishes:

These are usually the result of manufacturing imperfections that do not affect image intensifier reliability and are not normally a cause for rejecting a MUM-14. However, some types of blemishes can get worse over time and interfere with the ability to perform the mission. If you believe a blemish is cause for rejection, record the specific nature of the problem on the maintenance forms and identify the position of the blemish by using the clock method and approximate distance from the center (e.g., 5:00 toward the outside, 2:30 near the center, or 1:00 midway). The following are cosmetic blemishes:

- 1. Bright Spots.** A bright spot is a small, non-uniform, bright area that may flicker or appear constant (Figure 5-3). Not all bright spots make the MUM-14 rejectable. Cup your hand over the lens to block out all light. If the bright spot remains, return the MUM-14 to the maintainer. Bright spots usually go away when the light is blocked out. Make sure any bright spot is not simply a bright area in the scene you are viewing. **Bright spots are acceptable if they do not interfere with the ability to view the outside scene and the ability to perform the mission.**
- 2. Emission Points.** A steady or fluctuating pinpoint of bright light in the image area and does not go away when all light is blocked from the objective lens of the monocular (Figure 5-3). The position of an emission point within the image area does not move. Not all emission points make the MUM-14 rejectable. Make sure any emission point is not simply a point light source in the scene you are viewing. **Emission points are acceptable if they do not interfere with the ability to perform the mission.**

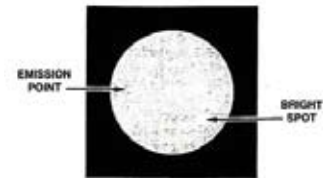


Figure 5-3. Bright Spots and Emission Points

- 3. Black Spots.** These are cosmetic blemishes in the image intensifier or dirt or debris between the lenses. Black spots are acceptable as long as they do not interfere with viewing the image. **No action is required if this condition is present unless the spots interfere with the operator's ability to perform the mission.**
- 4. Fixed-Pattern Noise.** This is usually a cosmetic blemish characterized by a faint hexagonal (honeycomb) pattern throughout the viewing area that most often occurs at high light levels or when viewing very bright lights (See Figure 5-4). This pattern can be seen in every image intensifier if the light level is high enough. **This condition is acceptable as long as the pattern does not interfere with viewing the image and interfere with the ability to perform the mission.**

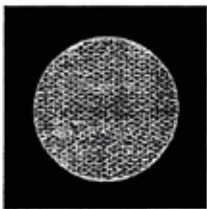


Figure 5-4 Fixed-Pattern Noise



Figure 5-5 Chicken Wire

- 5. Chicken Wire.** An irregular pattern of dark thin lines in the field of view either throughout the image area or in parts of the image area (See Figure 5-5). Under the worst-case condition, these lines will form hexagonal or square-wave shaped lines. **No action is required if this condition is present unless it interferes with the viewing the image and interferes with the operator's ability to perform the mission.**

CHAPTER 6: PREVENTIVE MAINTENANCE

The user's environment will determine the frequency (i.e. the deployment, the mission, the use) of preventive maintenance steps listed in the following table.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
1.	Before	Maintenance	<ul style="list-style-type: none"> • Open carrying case, inventory items and check records for 180-day services completed. • Previously recorded faults on maintenance records. 	Not Current. Fault not corrected.
2.	Before/ After	Optical Surfaces	Inspect lens for dirt, fingerprint residue, chips, or cracks. If necessary, clean and dry lens with water and lens tissue.	Scratches or chips hinder vision with monocular turned on, or if cracks are present.

Table 6-1 Preventive Maintenance Checks and Services for MUM-14.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
3.	Before/ After	External Surfaces	Inspect for cracks or damage. Scratches and gouges are OK if operation is not affected.	Cracked or damaged.
4.	Before/ After	Battery Adapter / Compartment	Check to make sure battery adapter is present. Remove battery adapter and inspect for corrosion, moisture, corroded or defective contacts, and that o-ring is present.	Adapter is missing, contacts damaged or corroded, or o-ring is missing.
5.	Before/ After	Diopter Adjustment Ring	Rotate diopter adjustment ring to make sure the eyepiece is not too tight or too loose. Range is approximately ½ turn.	Binding, not moving freely or too loose.

Table 6-1 Preventive Maintenance Checks and Services for MUM-14.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
6.	Before/ After	Eyecup	Inspect for dirt, dust, and cracked or torn cup. Inspect for bent, broken or improperly fitting eyecup. If necessary, clean with water.	
7.	Before/ After	Objective Lens Focus Knob	Rotate objective lens focus knob to ensure free movement (range is approx. 1/3 turn)	Binding or not moving freely.
8.	Before/ After	Lens Cap	Inspect for cracked, torn, or missing lens cap.	
9.	Before/ After	On/Off Switch	Turn switch OFF to ON. Each position should have a definite stopping point. Inspect for broken or missing knob.	Switch has no definite stopping points or knob is broken or missing.

Table 6-1 Preventive Maintenance Checks and Services for MUUM-14.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
10.	Before/ After	Viewed Image	Refer to Section V – Operation Defects – to inspect for operational defects.	Flickering, flashing, edge glow, or shading is observed.
11.	Before/ After	Strap Pads	Inspect for cuts, tears, fraying, holes, cracks, or defective fasteners.	Damage causes straps or pads to be unserviceable.
12.	Before/ After	Socket	Inspect for dirt, dust, or corrosion. Insert MUM-14 latch into socket to verify secure attachment of MUM-14 to head mount. If necessary, clean socket with water.	Damaged, latch won't work or too loose.
13.	Before/ After	For and Aft Adjustments	Press the socket-release button and check for free motion. Inspect for damage.	Binding, damaged or non-operational slide mechanism.

Table 6-1 Preventive Maintenance Checks and Services for MUM-14.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
14.	Before/ After	Straps	Inspect for cuts, tears, fraying, holes, cracks, or defective fasteners.	Damage causes straps to be unserviceable.
15.	Before/ After	Headmount / Helmet Mount Adapter	Inspect for dirt, dust, or corrosion. Insert into headmount or helmet mount socket to verify secure attachment.	Damaged, will not latch securely.
16.	Before/ After	Small Arms Mount Adapter	Inspect for dust, dirt, or corrosion.	Damaged, will not mount to MUM-14 or will not mount to weapon mount rail.
<div style="border: 1px solid black; padding: 5px; display: inline-block;">CAUTION</div> THE DEMIST COATING ON THE DEMIST SHIELD CAN BE DAMAGED IF CLEANED WHILE WET OR CLEANED WITH WET LENS PAPER. CLEAN ONLY WHEN THE DEMIST SHIELD IS DRY AND ONLY USE DRY LENS PAPER.				

Table 6-1 Preventive Maintenance Checks and Services for MUM-14.

Item No.	Interval	Location Item to Check/Service	Procedure	Not Fully Mission Capable If:
17.	Before/ After	Demist Shield	Inspect for dirt, dust, scratches or damage. If necessary, clean when shield is dry with dry lens tissue only.	Damage or scratches hinder vision with MUM-14 on.
18.	Before/ After	Sacrificial Window	Inspect for dirt, dust, scratches, or damage. If necessary, clean.	Damage or scratches hinder vision with MUM-14 on.
19.	Before/ After	3X Magnifier	Inspect optical surface for dirt, dust, scratches or cracks.	Damage or scratches hinder vision.
20.	Before/ After	Carrying Case	Remove all items and shake out loose dirt or foreign material. Inspect for tears, cuts, excess wear or damage to mounting clips.	
21.	Before/ After	Shoulder Strap	Inspect for cuts, tears, or excess wear or damaged clips.	

Table 6-1 Preventive Maintenance Checks and Services for MUM-14.

Cleaning the MUM-14:

Clean monocular with water, if necessary, and dry thoroughly. Clean lenses with lens paper (and water, if necessary, except for demisting shield).

CAUTION

THE MUM-14 IS A PRECISION OPTICAL INSTRUMENT AND MUST BE HANDLED CAREFULLY AT ALL TIMES TO PREVENT DAMAGE.

DO NOT SCRATCH THE EXTERNAL LENS SURFACES OR TOUCH THEM WITH YOUR FINGERS.

WIPING DEMISTING SHIELD WITH LENS PAPER WHILE WET OR WITH WET LENS PAPER CAN DAMAGE THE COATING.

Headmount Maintenance:**Browpad Replacement:**

Replace the browpads when cracked, torn, or contaminated. Perform the following procedure to remove and replace the browpads.

1. Firmly grasp the headmount and remove the old browpad.
2. Gently press on the new browpad. Lightly smooth out any wrinkles in the new browpad.

Neckpad Reinstallation:

During operation of the monocular, it is possible for the neckpad to become separated from its position on the headband. Perform the following procedures to reinstall the neckpad.

1. Lift the upper headband strap retention tab (see Figure 6-1), allowing the neckpad strap to be inserted underneath.
2. Slip the neckpad strap all the way under the upper strap retention tab and then pull the lower part of the neckpad strap under the lower strap retention tab.
3. Repeat steps 1 and 2 for the other side of the headband and neckpad if necessary.



Figure 6-1. Neckpad Reinstallation



Figure 6-2. Lacing the Sliding Bar Buckle

Lacing the Sliding Bar Buckle:

While donning and adjusting the headmount, it is possible for a strap to slip out of a slide fastener. Perform the following procedure to replace the strap and sliding bar buckle.

1. Thread the strap from the inside of the buckle over the moveable sliding bar (see Figure 6-2). Thread the strap back through the buckle but this time under the sliding bar and over the serrated part of the buckle.

Operator Troubleshooting:

Table 6-2 lists common malfunctions that you may find with your equipment. Perform the tests, inspections, and corrective actions in the order they appear in the table.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your maintainer.

Malfunction	Test or Inspection	Corrective Action
Monocular fails to activate.	Visual. Check for defective, missing or improperly installed batteries.	Turn switch to OFF position and then ON. Replace batteries or install correctly.
IR illuminator fails to activate.	In a dark location with system turned on, activate IR. Visually check IR illuminator operation; scene should brighten.	If IR illuminator fails to activate, refer to higher level of maintenance.
IR indicator fails to activate.	Visual.	Refer to higher level of maintenance.

Table 6-2. Operator Troubleshooting for MUM-14

Malfunction	Test or Inspection	Corrective Action
Lenses are not fixed.	Check the o-rings.	Install appropriate o-rings.
	Check for the correct adapter.	Use the MUM-14 adapter.
Poor image quality	Check objective lens or eyepiece focus.	Refocus.
	Check for fogging or dirt on lens.	Clean lens surface. If image quality is still poor, refer to higher level of maintenance.
Light visible around eyecup	Check eye-relief distance.	Readjust for proper eye-relief distance.
	Check eyecup for resiliency.	If eyecup is defective, refer to higher level of maintenance.
Diopter adjustment cannot be made	Check to see if the diopter adjustment ring is bent or broken.	If damaged, refer to higher level of maintenance.
Helmet mount will not tighten to helmet.	Inspect mounting hardware for damage.	If damaged, refer to higher level of maintenance.

Table 6-2. Operator Troubleshooting for MUM-14

Malfunction	Test or Inspection	Corrective Action
Battery adapter difficult to remove.	<p>Visually inspect for the presence of an o-ring</p> <p>Check for damaged battery adapter.</p>	<p>If o-ring is missing, replace.</p> <p>If damaged, refer to higher level of maintenance.</p>
Head straps cannot be tightened	Check for defective buckles, fasteners or straps.	If damaged, refer to higher level of maintenance.
Headmount or helmet mount socket and head/helmet mount adapter latch does not catch.	<p>Check socket or latch for dirt.</p> <p>Check socket or latch for damage.</p>	<p>Clean socket and latch.</p> <p>If damaged, return both headmount or head/helmet mount adapter to higher level of maintenance.</p>

Table 6-2. Operator Troubleshooting for MUM-14

APPENDIX

Kit Components:

ITEM	DESCRIPTION	PART
1	Multi-Use Minimonocular	NVM-31250 NVM-31600 NVM-31601
2	Lens Cap	NVM-178
3	Eye-cup	A3144422
4	Soft Carrying Case	A3187392
5	Operators Manual	830-0016-0
6	Demist Shield	NVM-033
7	Sacrificial Window	NVM-032
8	Head Mount Assembly	A3144268
9	Head Mount Adapter	NVM-042
10	Lens Tissue	170-10
11	Battery AA Alkaline	580-0001-0
12	Battery 123A Lithium	580-0002-0
13	Battery Adapter	NVM-198
14	Weapon Mount Assembly	NVM-024
15	Neck Cord	A3144306
16	Neck Pad, Medium	A3144435
17	Neck Pad, Large	A3144436
18	Shoulder Strap	7B267
19	Quick Reference Guide	830-0018-0

Tabl A-1. MUM-14 End Item Components

Repair Parts List:

ITEM	DESCRIPTION	PART NO.
1	Battery Cap Insert	NVM-138
2	123 A Lithium Battery	580-0002-0
ALT	AA Alkaline Battery	580-0001-0
3	Purge Screw	A3144315
4	Battery Adapter	NVM-198
5	Lens Cap	NVM-178
6	Sacrificial Window	NVM-032
7	Demist Shield	NVM-033
8	Battery Cap Retainer	NVM-156
9	Objective Lens Assembly	NVM-030
10	Eyepiece Lens Assembly	NVM-035
11	Head/Helmet Mount Adapter	NVM-042
12	Ship/Storage Case	A3144257
13	Neck Cord	A3144306
14	Soft Carry Case	A3187392
15	Eyecup Assembly	A3144422
16	Operator Manual	830-0016-0
17	Shoulder Strap	A3144267
18	Head Mount Assembly	A3144268
19	Lens Tissue	170-10

Table A-2. MUM-14 Repair Parts List

Repair Parts List:

ITEM	DESCRIPTION	PART NO.
20	Small Pad	A3144280
21	Medium Pad	A3144435
22	Large Pad	A3144436
23	Weapon Mount Assembly	NVM-024
24	Electronics Housing Assembly	NVM-020
25	Image Intensifier Tube	MX-10160-1250 MX-10160-1600 MX-10160-1601
26	IR Light Pipe	NVM-074
27	Tube Housing Assembly	NVM-036
28	Sealing Screw	715-0034-A

Table A-2. MUM-14 Repair Parts List

WARRANTY

EQUIPMENT WARRANTIES AND REMEDY:

Seller warrants that each newly manufactured item sold hereunder and such portion of a repaired/refurbished item as has been repaired or replaced by Seller under this warranty, shall be free from defects in material or workmanship at the time of shipment and shall perform during the warranty period in accordance with the specifications incorporated herein. Should any failure to conform to these warranties be discovered and brought to Seller's attention during the warranty period and be substantiated by examination at Seller's factory or by authorized field personnel, then at its own cost, Seller shall correct such failure by, at Seller's option, repair or replacement of the non-conforming item or portion thereof, or return the unit purchase price of the non-conforming item or component. Buyer agrees that this remedy shall be its sole and exclusive remedy against Seller and that no other remedy shall be available or pursued by Buyer against Seller. In no event shall the Seller be liable for any cost or expense in excess of those described in this paragraph and expressly excluding any liability or damages for special, incidental or consequential damages.

The warranty period for newly-manufactured items shall extend 12 months from the date of shipment by Seller unless a different warranty period is agreed in writing to by Seller. The warranty period for repaired/refurbished electronic components shall extend for the unexpired warranty period or 90 days, whichever is longer, of the item repaired or replaced. The warranty period for intensifier repair/replacement shall extend six (6) months from the date of shipment by seller or the balance of original warranty, whichever is longer.

This warranty shall not extend to any item that upon examination by Seller is found to have been subject to:

- a) mishandling, misuse, negligence or accident.
- b) installation, operation or maintenance that either was not in accordance with Seller's specifications and instructions, or otherwise improper.
- c) tampering, as evidenced, for example, by broken seals, damaged packaging containers, etc.
- d) repair or alteration by anyone other than Seller without Seller's express advance written approval.

Failure to promptly notify Seller in writing upon discovery of any non-conforming item during the warranty period shall void the warranty as to such item. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller, who shall arrange for transportation. The cost of transportation for articles returned to Seller and/or redelivered to Buyer shall be paid by Seller only if Seller is responsible for repair or replacement under this warranty. In the event the item is found to conform to the specifications and requirements of this order, the transportation charges related to the return and re-delivery thereof are for the account of Buyer.

Return Material Authorization Number:

Warranty and non-warranty items returned to Nivisys for repair or replacement require a Return Material Authorization Number, (RMA #). Email support@nivisys.com; call 1-480-970-3222 or fax 1-480-970-3555 with serial number and detailed information to obtain a RMA number.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

